

**REMARKS**

**Status of Claims**

Claims 1-3, 5-24, 26-30 and 48-51 are pending in the application. Claims 1-3, 5-17, 19-24, 26-30 and 48-51 are currently rejected. Claim 18 is allowed. Claims 7, 11, 12, 14, and 21 are being cancelled in this response. Claims 1, 8, 10, 20, 26, 27 and 28 have been amended.

Support for the amendments can be found throughout the specification as originally filed. Specifically, support for the amendments to claims 1 can be found, for example, in paragraph [0105], support for the amendment to claim 20 can be found, for example, in paragraph [0105] and [0014]. The amendment to claim 10 was made to further clarify the claim. Support for the amendment to claim 27 can be found, for example, in paragraphs [0147] through [0149]. The amendment to claim 26 was made to correct the antecedent basis, and support can be found in original claim 25 as filed. Support for the amendments to claims 8 and 28 can be found, for example, in paragraph [0014]. No new matter has been added.

In light of the amendments and remarks herein, reconsideration of claims 1-3, 5, 6, 8-10, 13, 15-20, 22-24, 26-30 and 48-51 is respectfully requested.

**Allowable Subject Matter**

Applicants note with appreciation the Examiner's indication that claim 18 is allowed.

**Amendments to the Claims**

While Applicants believe that the previously presented claims are patentable over all of the art cited in the Office Action, as well as all other references submitted by Applicants, the claims have nonetheless been amended as follows in order to expedite the allowance of the claims. The amendments are, therefore, made without prejudice or disclaimer, and Applicants reserve the right to pursue the original scope of the claims as provided prior to the cancellation or amendment of the claims, such as through continuation practice.

Claims 1, 8, 10, 20 and 28 are amended to address the Examiner's concerns on pages 3 and 4 of the office action with regard to the method steps associated with dependent claims 2, 3, 8-10, 27-30, 50 and 51. Applicants believe that they have fully addressed these concerns. However, if Applicants have misunderstood the Examiner's concerns, Applicants request an interview with the Examiner to address the issue. The amendments to the claims are fully supported throughout the specification.

Claim 27 is amended to provide sufficient antecedent basis. Support for the amendment is found throughout the specification, including the original claims as filed. (See, e.g., ¶¶ 147-149 and generally 119-150.)

**Claim Rejections - 35 U.S.C. § 112**

The Examiner rejected 7, 11, 12, and 21 for failing to comply with the written description requirement, and claim 14 as being indefinite. The Applicants disagree with the Examiner's analysis regarding these claims, but have cancelled the claims to place the application in order for allowance.

The examiner rejected claim 27 as having insufficient antecedent basis. The Applicants have amended claim 27 to address the Examiner's concern.

**Claim Rejections - 35 U.S.C. § 102**

Claims 1-3, 5, 6, 8-10, 13-17, 20, 22, 26-30 and 48-51 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent 6,159, 236 to Biel. (herein "Biel"). These claims are patentable, however, because Biel fails to disclose all of the elements recited in the claims. For example, independent claim 1 recites, among other things, "a reduction in the number of the pathogens within the oral cavity *without application of an exogenous photosensitizer.*" (Emphasis added.) Similarly, claim 20 recites a wavelength range "capable of being accepted by an *endogenous* light acceptor within the tissue." (Emphasis added.)

Biel does not disclose either an endogenous light acceptor or not applying an exogenous photosensitizer. Instead, Biel is expressly premised on the use of an exogenous photosensitizer.

Biel discloses a device for use in Photodynamic Therapy ("PDT"). For example, in the abstract, Biel discloses that the light sources of the invention "emit energy for photodynamic therapy." Similarly, in the Summary of the Invention, Biel discloses that "[t]he invention relates to a PDT treatment device." (Biel Col. 1, line 56.) Nowhere in the specification does Biel disclose using the device for any application other than PDT.

By definition, PDT involves the use of an exogenous photosensitizer. For example, in the background section, Biel discloses prior art related to the treatment of cancer with PDT. (See Biel Col 1, lines 15-27 (citing U.S. Patent No. 4,822,335).) The definition of PDT used publicly by the American Cancer Society makes clear that PDT involves the use of exogenous photosensitizers.

Photodynamic therapy (PDT) is also called photoradiation therapy, phototherapy, or photochemotherapy. It involves using drugs, called **photosensitizing agents**, along with light to kill cancer cells. The drugs only work after they have been activated by certain kinds of light.

(See Exhibit A (web page from the American Cancer Society at [http://www.cancer.org/docroot/ETO/content/ETO\\_1\\_4X\\_What\\_Is\\_Photodynamic\\_Therapy.asp](http://www.cancer.org/docroot/ETO/content/ETO_1_4X_What_Is_Photodynamic_Therapy.asp), which was printed by the author on October 12, 2007).)

Because Biel discloses a device for use in conjunction with exogenous sensitizers, and does not disclose any other use for the invention, Biel does not anticipate all of the elements of either claim 1 or claim 20.

Claims 2-3, 5, 6, 8-10, 13-17, 22, 26-30 and 48-51 are patentable for at least the reasons that Claims 1 and 20, from which each respectively depends, are patentable. Thus, claims 1-3, 5, 6, 8-10, 13-17, 20, 22, 26-30 and 48-51 are in order for allowance.

### **Claim Rejections - 35 U.S.C. § 103**

Claim 19 was rejected under 35 U.S.C. §103(a) as being unpatentable over Biel in further view of U.S. Patent 6,135,774 to Hack (herein "Hack") and claims 23 and 24 were rejected under 35 U.S.C. §103(a) as being unpatentable over Biel in further view of U.S. Patent 6,026,828 to

Altshuler. The Applicants disagree with the Examiner's application of Biel, Hack and Altshuler to these claims. However, these claims are not obvious in light of the cited art, at a minimum, because neither reference discloses all of the elements of the independent claims from which each of the claims depend as discussed above. Therefore, Applicants submit that claims 19, 23 and 24 are patentable over the cited art.

### CONCLUSION

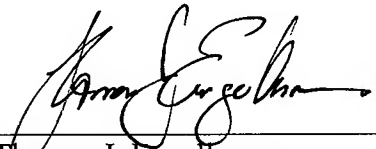
In summary, the above-identified patent application has been amended and reconsideration is respectfully requested for all the reasons set forth above. In the event that the amendments and remarks are not deemed to overcome the grounds for rejection, the Examiner is kindly requested to telephone the undersigned representative to discuss any remaining issues.

Respectfully submitted,

NUTTER McCLENNEN & FISH LLP

Dated: October 12, 2007

Respectfully submitted,

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# EXHIBIT A

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## What Is Photodynamic Therapy (PDT)?

Photodynamic therapy (PDT) is also called photoradiation therapy, phototherapy, or photochemotherapy. It involves using drugs, called **photosensitizing agents**, along with light to kill cancer cells. The drugs only work after they have been activated by certain kinds of light.

Depending on the part of the body being treated, the photosensitizing agent is either injected into the bloodstream or applied to the skin. After the drug is absorbed by the cancer cells a light source is applied only to the area to be treated. The light causes the drug to react with oxygen, which forms a chemical that kills the cancer cells. PDT may also work by destroying the blood vessels that feed the cancer cells and by alerting the immune system to attack the cancer.

The period of time between when the drug is given and the light is applied is called the drug-to-light interval. It can be anywhere from a couple of hours to a couple of days and depends on the drug used.

Studies have shown that PDT can work as well as surgery or radiation therapy in treating certain kinds of cancers and pre-cancerous conditions. It may have some advantages, such as:

- It has no long-term side effects when used properly.
- It is less invasive than surgery.
- It can be targeted very precisely.
- Unlike radiation, it can be repeated several times at the same site if necessary.
- There is little or no scarring after the site heals.

However, PDT has its limits, too. It can only treat areas where light can reach, so it is mainly used to treat problems on or just under the skin, or in the lining of internal organs. While the drugs may travel throughout the body, the treatment only works at the area exposed to light, so PDT can't be used to treat extensive cancers. Also, the drugs that are now in use leave people very sensitive to light, and during this time special precautions must be taken.

Revised: 03/20/2007

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